DOCUMENT RESUME

ED 041 216 AC 008 180

AUTHOR	Jones, J. H., Jr.
TITLE	Evaluation of the Louisiana Nutrition Education Program.
INSTITUTION	Louisiana State Univ., Baton Rouge. Cooperative Extension Service.
PUB DATE	70
NOTE	75p.
EDRS PRICE	EDRS Price MF-$0.50 HC-$3.85
DESCRIPTORS	Adoption (Ideas), Age Differences, Caucasians, Children, Educational Background, Educational Methods, Family Status, Housewives, Knowledge Level, *Low Income Groups, Negroes, *Nutrition Instruction, *Program Evaluation, Questionnaires, *Rural Extension, *Teacher Aides, Urban Areas
IDENTIFIERS	Cooperative Extension Service, *Louisiana

ABSTRACT

In 1969, 385 Louisiana Cooperative Extension Service aides conducted an eight week nutrition education program (expanded to 12 weeks in three parishes) for over 18,000 low income homemakers and children in 31 parishes. Initial interviews were used to ascertain nutrition habits and influences thereon, knowledge levels, homemakers' age and education, and family income, race, residence, family size, household items, and families on welfare. Significant changes, often affected by income and food sources, were made by both homemakers and children in consumption of certain foods. The greatest change was in the milk and milk products group; second greatest was the increased use of fruits and vegetables. A moderate change occurred in the use of bread and cereals. The least change was noted for the meat and meat substitute group. The technique of influencing homemakers through children (and vice versa) proved effective. It is expected that the program will be continued and expanded, and that future nutrition education programs will benefit from knowledge gained in this program. (Fifteen tables and a questionnaire are included.) (LY)

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

ED041216

Evaluation of the Louisiana Nutrition Education Program

LSU COOPERATIVE EXTENSION SERVICE

AC008180

ED041216

Louisiana was one of several states receiving special funds from the U.S. Department of Agriculture thorugh the Federal Extension Service with which to execute an educational program in foods and nutrition for disadvantaged families.

Most of this grant was used to pay trained Aides who worked directly with the families.

The Louisiana Cooperative Extension Service contributed the resources of its staff as a major effort toward the success of the program.

TABLE OF CONTENTS

	Page
LIST OF TABLES	v
THE EVALUATION PROCEDURE	1
SPECIAL NUTRITION PROGRAM	3
The Louisiana Program	4
Aide Training	5
Agent Training	6
Program Content	7
An Organizational Approach	9
SOME CHARACTERISTICS OF THE HOMEMAKER	10
Age Of Homemakers	10
Education Of Homemakers	10
SOME FAMILY CHARACTERISTICS	11
Income	11
Family Residence	11
Place Of Residence	11
Race Of Family	11
Size Of Family	11
Families On Welfare	12
Some Household Items	12
Summary Of Family Characteristics	12
SOME CHARACTERISTICS OF THE AIDES	13
Age Of The Aide	13
Education Of The Aides	13
Relation Of Aide To Homemaker Before The Program	14
Agents' Rating Of Aide	14
A TEST GIVEN TO THE AIDES	15

Page

SOME FACTORS RELATED TO FOOD. 17

Families Eating At home. 17
Families Monthly Food Costs. 17
Where Families Buy Groceries 19
Distance To Donated Food Center Or Food Stamp Office 20
Sources Of Food. 20

Some Sources Of Food Related To Family Income . 21

EVALUATION OF THE NUTRITION PROGRAM AMONG HOMEMAKERS. 22

Milk And Milk Products 22

Homemakers' Use Of Milk Related To Income . . . 24
Homemakers' Use Of Milk By Place Of Residence . 24
Homemakers' Use Of Milk By Education. 26

Homemakers' Use Of Meat By Income, Residence, And Education. 26
Vegetables And Fruit In The Homemakers' Diet . . . 27
Bread And Cereal In The Homemakers' Diet 28

"ADEQUATE" DIET AMONG HOMEMAKERS. 29

Income 29
Residence. 31

HOMEMAKERS' KNOWLEDGE OF FOODS NECESSARY FOR GOOD HEALTH. 33

Changes Made By Homemakers As A Result Of The Program. 35

Milk And Milk Products. 35
Meat And Meat Substitutes 35
Changes In Vegetables And Fruit 35
Changes In Bread And Cereal 35
Changes In The Breakfast Meal 35
Changes In The Use Of Sweets. 36
Changes In A Balanced Diet. 36

Page

HOMEMAKERS NOT IN THE PROGRAM, BUT THEIR CHILDREN WERE. 38

Influence Of The Program On The Child. 39
Some Family Characteristics. 39
Value Of The Program To The Homemaker. 40

EVALUATION OF THE CHILDRENS' FOOD HABITS. 43

Some Characteristics Of The Children In The Program. 43
Milk And Milk Products Consumed By The Youth . . . 44
Youths' Changes In Milk Consumption By Selected Variables. 45

Sex 45
Residence 45
Race. 45
Age 47

Consumption Of Meat And Meat Products By The Youth 47

Youths' Changes In Meat Consumption By Selected Variables 47

Consumption Of Vegetables And Fruit By The Youth . 48

Youths' Changes In Vegetables And Fruit Consumption By Selected Variables. 48

Consumption Of Bread And Cereal By The Youth . . . 48

Youths' Changes In Bread And Cereal Consumption By Selected Variables 49

Summary. 49

YOUTHS' KNOWLEDGE ABOUT NUTRITION 50

A Comparison Of Changes Among Homemakers To Those Among Youth. 51

Milk And Milk Products. 51
Meat And Meat Substitutes 51
Vegetables And Fruit. 51
Bread And Cereal. 51

Page

EVALUATION OF A TWELVE WEEK NUTRITION EDUCATION PROGRAM 53

Milk And Milk Products 53
Meat And Meat Products 53
Vegetable And Fruit Group. 53
Bread And Cereal Group 54
From Each Of The Four Food Groups. 54
Food From Each Of The Four Food Groups 54
Knowledge Of Nutrition 54
Number Of Changes After Four Additional Weeks Of The Program. 54

SUMMARY EVALUATION OF THE NUTRITION PROGRAM 56

LIST OF TABLES

TABLE		PAGE
I	Percentage of family members eating various meals at home by proportion of family present for the meal	18
II	Percentage of HOMEMAKERS by number of servings of the four basic food groups during 24 hour period "before" the eight week special nutrition program compared to a 24 hour period "after" the program.	23
III	Percentage of CHILDREN by number of servings of the four basic food groups during 24 hour period "before" the eight week special nutrition program compared to a 24 hour period "after" the program.	23
IV	Percentage of Homemakers having adequate servings of each of four major food groups during 24 hour periods "before" and "after" the 8 week program by Income, Residence, and Education, 1969.	25
V	A comparison of HOMEMAKERS by number of servings of each of the four basic food groups "before" and "after" the eight weeks program by Income and Residence.	30
VI	Percentage of Homemakers and Youth who mentioned some food or drink from the four basic food groups as being necessary for good health "before" compared to "after" the eight week nutrition program.	34
VII	Percentage of HOMEMAKERS by number of changes made in four basic food groups and other selected items as a result of the eight weeks nutrition education program in Louisiana.	37
VIII	Percentage of Youth having a specified number of servings of various food groups for designated 24 hour periods "before" and "after" the 8 weeks Nutrition Education Program by Sex, Residence, Race, and Age, Louisiana 1969	46

THE EVALUATION PROCEDURE

The following procedure was used to evaluate the special eight week nutrition program in Louisiana. Immediately after each homemaker was enrolled in the program, and before receiving any educational information concerning nutrition each homemaker was interviewed by an Aide. The primarily purpose of this interview was to get certain benchmark information concerning nutrition habits and knowledge inaddition to certain other information about the family. (See Appendix A). At this time the Aide obtained information from each homemaker concerning the kind of food and drink each had for a 24 hour period immediately preceeding the interview. Each homemaker was also asked what food and drink she thought people should have to keep healthy. The Aide also determined for each family certain information concerning race, place of residence, education, and age of respective family members, and certain information concerning their eating habits. When this benchmark information was completed by the Aide it was turned over to the Agent responsible for the nutrition program in the respective parishes where it was edited, scored where necessary, and filed in the Agent's office for future reference.

Inaddition, to benchmark information from each homemaker, each Aide was asked to obtain certain benchmark information from one child who was enrolled in the program. The sex and the age range of the child to be interviewed was predetermined. Information collected from the child included what the child had to eat and drink in a 24 hour period prior to the interview and what food and drink the child thought people should have to keep healthy. This information which was collected before the program began was attached to the questionnaire completed for the mother. (See Appendix B).

The homemaker phaze of the program "after" eight weeks was evaluated by having the Home Demonstration Agent from each of the 31 parishes in the program to interview a random sample of homemakers who had participated in the program. The sampling procedure for selecting the homemakers to be interviewed was to select names of homemakers at random from the various lists of homemakers which each Aide kept. This evaluation procedure involved interviews with a sample of more than 500 homemakers. The sampling procedure was designed so

that at least one homemaker from each Aide's list of homemakers was included. Selection of individual homemakers was made by numbering the homemakers on the list and selecting the numbers at random.[1]

---

1. A check on the reliability and validity of the sample was made by tabulating data from half the sample and comparing to data from the other half of the sample. A comparison of halves of the samples, selected at random, showed practically no differences in any item of the questionnaire. Although, we can be quite safe in making judgements about the entire population based on a sample of this size, the split-halves test increases our confidence.

SPECIAL NUTRITION PROGRAM

The United States of America is the world's greatest food producer. In 1900 the average American farmer produced enough food and fiber for himself and six other people. In 1968 he produced enough for himself and 42 other people, including 5 people in other countries who depend on food grown in America for part of their sustenance.

The American people today enjoy a better diet than do the people of any other large country--and at a lower cost, in proportion to average incomes, but recently we in America have become more and more aware of extensive malnutrition in the land of plenty. In our operation of various assistance programs and through selected research projects we have found that malnutrition is not always purely a problem of lack of money. It is the product also of tragic lack of knowledge concerning the simplest principles of nutrition. Lack of knowledge of how to select and prepare a good diet, how to make the best use of commodities and food stamp from food distribution programs, and where to find assistance.

These are some of the facts that prompted the United States Department of Agriculture to launch an expanded nutrition program designed to carry life-saving and health-protecting nutrition information directly to those who need it and can make such good use of it. The Cooperative Extension Service was selected to conduct this program. This choice was made because Extension has an active program of nutrition education, because of Extension's long experience in working with people in low-income groups, and because Extension recently has experience in employment of sub-professional Extension Aides to multiply the efforts of the Parish Agents and reach more people through personal contacts.

Many of the people who need this information do little reading. They seldom if ever go to meetings. They do not listen regularly to educational programs on television or radio. They can best be reached through a "people to people" educational program. Extension has done much of this kind of educational work in its 60-year history and has found in its 4-H Club activities a proven method of reaching parents through contacts with their children.

The Expanded Nutrition Program got under way in Louisiana early in 1968, with the aid of a grant of $307,000 from the United States Department of Agriculture to Louisiana State University.

The Louisiana Program.

During the spring and early summer of 1969, the Louisiana Cooperative Extension Service with a grant of $307,000 from the United States Department of Agriculture, executed a special nutrition education program in 31 of its 64 parishes. The program for each parish lasted 8 weeks and followed a statewide plan for content and procedure. During the program 385 Extension Aides worked with over 18,000 homemakers and children in a concentrated nutrition program. Generally there were 15 Aides per parish and each Aide worked with about 15 homemakers and from 25 to 35 children. However, a few parishes such as Orleans had up to 30 Aides and a few less than 15 Aides. The objectves of the program were:

1. To increase the level of understanding of the basic elements of human nutrition of low-income persons involved in the program.

2. To improve the personal food habits of the children and adults of the same families indicated in "1" above.

3. To increase the understanding of and ability to use the Food Stamp and Donated Food Programs of the Department of Agriculture by the aforementioned families.

4. To increase the ability of the homemakers in the same families to plan more nutritious and more attractive meals for their families.

5. To increase the knowledge of homemakers involved concerning the opportunities available to get more nutrition for the family food dollar.

6. To improve the personal health habits of the young people from the families involved in the program.

7. To train leaders among the economically deprived in the neighborhoods and communities in the state in which work is conducted, who will

continue to be sources of information and guidance to the residents therein after the completion of the program.

The program was directed to families with children. Two approaches were used: youth of families were organized in special groups to meet once a week for eight weeks and homemakers were visited once a week for eight weeks.

A definite nutrition program with simple nutrition concepts was taught by the Extension Aides. The youth program included additional aspects of personal hygiene, good gooming, citizenship, and group oriented activities.

The curriculum for the adult phase was based on simple nutrition concepts, however, sufficient flexibility was allowed to capitalize on individual interest and needs. During the latter phase of the adult program, some small group meetings were held by homemakers who seemed interested in this type activity.

One phase of the youth program involved mailing letters to the children. Two series of eight letters were sent to each child. In the first phase, one letter from series "one" was mailed each week from the parish office as a means of reinforcing some of the basic subject matter taught in the previous week work. About four weeks after completion of this eight week program, a second series of eight letters was mailed to the youth. Said one homemaker, "The letters did more to pep up my kids than all my coaxing and talking with them."

Aide Training. The first Aide training was a one day meeting at which they were explained the purpose of the program, how it was to be accomplished and the job of the Extension Aides. Following this, the Aides visited with families with schoolage children between ages 6-13 in their neighborhoods to determine the interest of families and children in the eight week nutrition program. Homemakers who indicated that they and their children would participate in the program were enrolled by the Aides. Each Aide completed a benchmark evaluation with every homemaker using the Family Record Form I (See Appendix A) following the enrollment of homemakers and children.

The Extension Aide received 32 hours of training before conducting the eight week program. The training provided the Aides with (1) an understanding of the educational program and what she and families participating in the program could accomplish, (2) how to work and help homemakers, boys

girls through working visits and meetings, (3) services available in the parishes to help families in their neighborhoods, and (4) basic nutrition concepts.

Inaddition, to the eight hours of orientation and the 32 hours of intensive training in nutrition, Aides spent eight hours each week in training for the next weeks work (64 hours). This weekly meeting, also, allowed some time for preparing teaching materials and for some routine administrative details A total of 104 hours in training was given each Aide in connection with the eight weeks program in Louisiana.

The intensive nutrition training emphasizes the following concept:

1. We eat food to live, to grow, to keep physically and mentally healthy and well, and to get energy for work and play.
2. Food is made up of different materials (nutrients) needed for growth and health.
3. A variety of foods are needed. No one food can do all the jobs.
4. Everyone needs milk.
5. Vegetables and fruits are needed daily.
6. Meat, poultry, fish, eggs, dry beans and peas, and peanut butter are good sources of protein foods.
7. Good low-cost diets may be obtained through the liberal use of enriched cereal foods.
8. The Daily Food Guide is a foundation for planning the days food needs.

Agent Training. Each home Agent involved in the program attended a district meeting for two and a half days. More than half of the time was spent on the Nutrition content of the program and how to prepare Aides to work with homemakers and youth. These discussions were led by Mrs. Irene Turner, State Extension Nutrition Specialist and Dr. Edward W. Gassie, Specialist (Training) and Professor of Extension Education. The remaining time involved various State Office personnel explaining such things as the administration of the program and evaluation procedures. The Parish Chairmen from the parishes involved in the "Special Nutrition Program" participated in one-half day of the meeting that was devoted to the discussion of administrative details of the program.

Program Content. The eight week nutrition program provided opportunities for boys, girls, and their mothers to develop (1) understandings why foods are needed, (2) understanding what foods are needed, (3) abilities in preparing simple food drinks and dishes, (4) understandings of the importance of eating breakfast, (5) understandings of the type of snack foods needed. These experiences helped individuals develop the idea that food is needed to live, to grow, to keep healthy, happy and well, and to get energy for work and play.

The first meeting for youth and the Aides' first visit to homemakers was designed to help participants understand that food is important because it provides materials (nutrients) that the body needs for life, growth, for "go power" and to keep healthy, happy and well. All participants became familiar with the "Daily Food Guide". As a project activity, the children were encouraged to bring pictures of foods to make a daily food guide poster. The youth brought pictures of foods at each meeting and talked about them and placed each in the food group to which it belonged. Aides and Agents adapted materials that would help the children become familiar with the four food groups. Peanut-butter milk was served at this meeting and children were given the recipe.

The second lesson was planned to create interest in the vegetable-fruit food group. Tomato seeds were planted which provided another experience for youth to talk about at each meeting. Tomato juice was served. Many children indicated that this was their first time to drink tomato juice.

At the third lesson, a science experiment, placing one chicken bone in a jar of vinegar and water and another in a jar of water really created interest and proved, also, that boys and girls recognized the need for drinking and using their quota of milk and milk products. Dry milk was reconstituted. A chocolate milk drink was served.

The fourth lesson introduced the bread and cereal group. A basic mix was prepared. From the mix, boys and girls made cheese biscuits. This activity; making the mix, using dry milk and making cheese biscuits, provided another opportunity to strengthen the concept that milk and milk products are needed.

The fifth lesson was to help homemakers, boys and girls acquire understanding of some low-cost body building foods from the meat group, the Extension Aides shared with them ways to prepare dry beans and peas and egg dishes.

There was a breakfast lesson, which provided an opportunity for boys and girls to make cheese and peanut butter toast and a milk drink, helping all participants develop an understanding that foods are needed in the morning and that it is important to get some body building foods in the breakfast meal. The Aides and the children played roles or presented skits in studying this subject. The mothers of the children indicated the need for assistance in helping them help their children learn to eat something in the morning.

Since many families eat in-between meals and a large number of children from low-income families drink an excessive number of bottle drinks, the participants studied selections of snack foods at their seventh lesson. The preparation of carrot sticks, milk drink, cubes of cheese and no-bake oatmeal cookies provided the participants with opportunities to become familiar with some good choices for snacks. According to Aides the idea that fruits and raw vegetables will clean teeth really became part of the boys, girls, and homemakers knowledge.

The eighth youth meeting provided opportunities for youth to share with their parents their class project activities.

During the week following each youth meeting, each Aide visited the mother of each child enrolled in the program in order to share with her what the child had been taught. The idea was to actually teach the mother some basic nutrition and also, to have the mother reinforce (and practice) at home what the child had learned at school.

The small group neighborhood homemakers meeting provided opportunities for homemakers, Extension Aides and Home Demonstration Agents to talk over food problems of their families, low-cost dishes and how to stretch the family food budget. Extension Aides and Agents provided ideas for low-cost dishes through "show and tell" sessions.

At the end of the eight week program, each child and homemaker who participated was awarded a certificate. (See Appendix C). The presentation was generally made at the eighth meeting involving youth and mothers and was very effective.

The general working procedures for each Aide during an average 40 hour week were to spend eight hours in training, writing reports and so forth. The other 32 hours consisted of working with children and their mothers. Of the 32 hours, four hours were spent in youth meetings and 28 hours were spent in home visits to the mothers.

An Organizational Approach. Whatever success was attained in the eight weeks nutrition program in Louisiana was partly due to the organizational approach used in the planning and execution of the program. The Administrative Staff of the Louisiana Extension Service, including Director John A. Cox, gave strong support to the program and definitely "labeled" it a priority item in the minds of other Extension personnel. The State Home Demonstration Agent made the two State Nutrition Specialists available on a practically full-time basis during the planning and execution of the program in Louisiana. The Research and Training Staffs of the organization were very active in the planning and training stages of the program and in the evaluation stage of the program.

A major part of the time of two 4-H Club Agents was spent in the planning and execution of the youth phase of the program in Louisiana. Also, the Editorial Staff was very much involved in various aspects of publicizing the program.

The effectiveness of the program in the various parishes was strengthened by the strong emphasis given the program by the District Agents and the District Program Specialists in the three Louisiana Districts. They made certain that each parish staff, and especially, the Home Demonstration Agent directly involved with the program, was aware of the importance of the program and did whatever was needed to carry out the program in their respective parishes. Not only did the Home Demonstration Agents give practically full-time to the program during the training and execution stages as well as the evaluation stage, but the Parish Chairman and other Agents were very active in many phases of the program. There was a definite "'espire de corp" among all Extension persons involved in the program that we must accept the challange of this important program with a very determined effort to do the best we could.

The Extension Aides who were hired for the eight weeks nutrition program seemed to get into the spirit of the job and gave a very dedicated and enthusiastic effort to the program. This enthusiastic cooperation at all levels had much to do with the eventual outcome of this important program in Louisiana.

SOME CHARACTERISTICS OF THE HOMEMAKER

Age Of Homemakers. Because a requirement for participation in the program was that the homemaker have at least one child between the ages of 7 and 13, who also participated, it would be expected that the age of the homemakers would be generally middle age or younger. Actually, about one-fourth of the homemakers (24%) were 30 years old or less and about one-third (33%) were from 31 to 40 years of age. There were 22 percent who were from 41 to 50 years of age and 8 percent who were 51 years or over. Thirteen percent of the mothers were either reluctant to give their age or were not asked for this information by the interviewer.

Education Of Homemakers. The educational attainment of homemakers in the program was slightly below that of the States adult female population and considerably below those of the same age category by 1960 census figures. One out of twenty homemakers in the study (5%) reported having no formal education while 6 percent had four years or less of schooling. About one-third (33%) had from five to eight years education and 27 percent had from nine to twelve years but did not finish high school. There were 14 percent who finished high school and a few of these had some training beyond high school. No data was collected concerning use of education for 15 percent of the homemakers.

These data would indicate that well over three-fourths of the homemakers had sufficient education to be able to read household recipes and most printed material distributed by the Extension Service concerning foods and nutrition. However, it would appear that for more than one out of ten of the homemakers printed material would be useless or fairly ineffective as a teaching aide.

SOME FAMILY CHARACTERISTICS

Income. A major criteria for selecting families to receive training and foods in nutrition was that they be from the lower economic levels. Only 8 percent of the families had annual family income of $5,000 or more. There were 10 percent with annual incomes ranging from $4,000 to $4,999 and 18 percent with incomes ranging from $3,000 to $3,999. Thus, a little over one-third of the families (36%) had incomes as high as $3,000 or more a year. Slightly over one-fourth of the families (28%) had incomes from $2,000 to $2,999 and about the same proportion (27%) had incomes ranging from $1,000 to $1,999. At the bottom of the economic ladder were about 8 percent who reported incomes of less than $1,000 per year. Thus, we find slightly more than one-third (35%) who had annual family incomes of less than $2,000 per year.

Family Residence. Although families in the program were generally in the lower economic categories it was found that almost half of them (48%) reported owning their homes while 41 percent indicated that they rented their present family residence. There were 8 percent who had some other residence arrangement such as having their place furnished by the farm owner or otherwise living in a house furnished by someone besides the family. Three percent did not respond to this question.

Place Of Residence. The place of residence of the families in the program was about half urban and half rural, and the rural were mostly non-farm. Exactly 50 percent (about 3,000 families) lived in urban areas while 36 percent (slightly over 2,000 families) were rural non-farm. Eleven percent were rural farm and 3 percent did not indicate place of residence.

Race Of Family. More than four-out-of-five families in the program were Negro (82%) while 17 percent were white and 1 percent were some other race, primarily Indian.

Size Of Family. Because of the importance of the youth program as a phaze of the nutrition education program in Louisiana, a special effort was made to enroll families with several children. More than one out of three families (36%)

had eight or more family members living at home. Of these a whopping 17 percent (over 1,000 of the families in the program) had ten or more family members. Almost the same proportion (35%) were families with six or seven family members. There were four or five family members in 20 percent of the families studied and three or less family members in 7 percent of the families. There was no response concerning size of the family for 2 percent of the cases.

Families On Welfare. More than one out of four families in the program (28%) were reported as being on the state welfare program. It is likely that most of these families were receiving aide for dependent children through the welfare.

Some Household Items. Practically all of the families (99%) lived in places with electricity and most of these (96%) had a refrigerator and the same proportion had a cook stove. However, less than four out of five (79%) had running water in the house, which would be more than 1200 of the 6,000 families without running water. Although, most of the families reported having a cook stove, it was somewhat surprising that only 66 percent of the families reported an oven in their stove. Thus, about one out of three families in the study were limited to food preparation without baking or broiling.

Slightly over half of the families (52%) reported having home freezers. Of the 4 percent who did not have a refrigerator, 2 percent reported having an icebox and presumably the remaining 2 percent had neither refrigerator or icebox. Also, 7 percent of the families reported having a hotplate and about half of these were families who reported having no cook stove.

Summary Of Family Characteristics. A summary of the 6,000 families involved in the special eight week nutrition education program in Louisiana would indicate that most of them were low-income, Negro, non-farm with large size families. About half of them owned their homes and most of the others rented. About one-fourth were on welfare. Most of the homes had electricity, a refrigerator, and a cook stove, but many did not have an oven in their stove or running water in the house. It is obvious that most of these family characteristics have implications for any educational program involving food and nutrition.

SOME CHARACTERISTICS OF THE AIDES

The Home Demonstration Agent in each parish had the major responsibility of securing Aides to work in her parish. She was generally assisted by the parish chairman and various other knowledgeable people in the community such as: welfare workers, ministers, and Home Demonstration Club members. The guide lines for selecting Aides were that the Aides generally represent about the same or slightly above the socio-economic level as the homemakers with which they were to work, so that they might work comfortably together. Preferably she was to be from the same community or neighborhood, especially if she had no transportation and hopefully she would have at least a high school education. An effort was made to secure Aides who were of reputable character and whose personalities seemed suited to the job. Most of the Aides were hired for a period of nine weeks and received a total of about $600 during that time. The primary exception was those who were continued for four additional weeks in the three parishes which experimented with the 12 week program.

Most of the parishes reported that their Aides did a very satisfactory job and most of the Aides were very enthusiastic about this work and expressed desires to continue in their jobs if the program was continued. A few Aides had to leave the program during the eight weeks but this was generally because of some unavoidable family problem such as: illness or death.

Age Of The Aide. The ages of the Aides in the special nutrition program were very similar to the ages of the homemakers whom they taught. Twenty-seven percent of the Aides were age 30 years or less and most of these (15%) were 25 years of age or less. About one-third (34%) of the Aides were from 31 to 40 years of age and 23 percent were from 41 to 50 years of age. Ten percent of the Aides were from 51 to 60 years of age and 2 percent were 61 years or over. There were 4 percent whose ages were not reported.

Education of The Aides. The education of the Aides was somewhat higher than that of the homemakers with whom they worked. At least 85 percent of the Aides had some high school

education and almost half of them 48 percent had completed high school. A more specific breakdown showed that 20 percent of the Aides had done work beyond their high school graduation and 28 percent had completed high school. There were 21 percent who had from 11 to 12 years of formal education but had not graduated from high school and 16 percent who had from nine to ten years formal education. Only 10 percent had completed less than nine years of formal schooling. Education of the Aide was not indicated for 5 percent of the cases.

Relation Of Aide To Homemaker Before The Program. Each homemaker interviewed was asked how well she knew her Aide before the program started. Almost two out of five of the homemakers (39%) said that the Aide was a close friend and 29 percent said they knew the Aide quite well. There were 13 percent of the homemakers who said they knew the Aide "slightly" giving a total of at least 81 percent of the homemakers who knew the Aide prior to the program. Seventeen percent of the homemakers said they did not know the Aide before the program and 2 percent failed to respond to the question.

Agents' Rating Of Aide. For each homemaker interviewed the Agent was asked to rate the Aide which worked with the homemaker as "above average", "average", or "below average". The Agent was asked to rate the Aide as a teacher as compared to other Aides in her parish. In 41 percent of the cases the Aide was rated as "above average" and the same proportion of cases was rated as "average". Ten percent of the cases were rated as "below average" and no rating was given for 8 percent of the cases. It would appear that although the Home Demonstration Agent recognized there were differences in the ability of the Aides, she tended to rate them "average" or "above average" and hesitated to rate them "below average".

A TEST GIVEN TO THE AIDES

In order to get some indication of the extent of knowledge about nutrition among the Extension Aides, a 45 question true/false test was given on the first day of orientation before any training began. It was, also, hoped that the test would point out certain areas of knowledge concerning nutrition which the Aides should be aware of during their training classes. The questions were divided among the seven weeks of subject matter material, and after each week of training the Aides were retested with the same questions to see if they had corrected their mistakes. Some of the questions on the tests were fairly simple in order to allow the Aides to show some competence, while others were focused more on particular subject matter information which they were expected to learn.

The average score for all Aides on the test given "before" training was 28 points out of the possible 45 points. The average score for the weekly examinations covering the same 45 questions "after" training was 36 points. Although, the Aides generally scored high after the training session, their average score was still 9 points below the perfect score of 45.

The weekly test was given after the presentation by the Agent and the papers were graded immediately, so that, the Agent could find which questions were missed and review these questions with the Aides before the meeting was over. The fact that the Aides knew they would be tested probably caused them to be more attentive during the class. However, the important aspect of the weekly test was for the Agent to find out which questions the Aides missed, so that, these could be reviewed before letting the Aides go out to teach the homemakers.

Although, no attempt was made to determine the number of changes Aides made in their own food habits or in feeding their families as a result of their experience in the program, it is certain that the program had more impact on them than on the homemakers. It was obvious from discussions with many of them that they had made many changes in feeding their own

families and had also influenced many persons, such as, their immediate neighbors and relatives, inaddition, to the homemakers who were their primarily audience in the program. In any total evaluation of the Nutrition Education Program in Louisiana, one should certainly consider the influence of this program on the 400 Aides who served as teachers.

SOME FACTORS RELATED TO FOOD

Families Eating At Home. In order to get some idea about the extent to which various family members ate meals at home, each homemaker was asked during the study to indicate how many of her family members ate various meals at home on the day prior to the interview. For each meal it was determined if "all", "most", "half", "less than half", or "no" family members were present. It was found that "all" family members were more likely to eat supper at home than any other meal and were fairly likely to eat breakfast at home but were unlikely to eat lunch at home. More specifically, it was found that 71 percent of the homemakers reported "all" family members present for supper compared to 57 percent reporting "all" present for breakfast and only 18 percent reporting "all" family members having lunch at home. (See Table I). Twenty percent of the homemakers reported that "most" family members were home for supper compared to 30 percent for breakfast and 23 percent for lunch. On the other hand 41 percent of the homemakers reported that "less than half" of the family were home for lunch compared to only 7 percent for breakfast and 4 percent for supper. Ten percent of the homemakers said that "no one" ate lunch at home on the day about which they were questioned, while 3 percent said "no one" ate breakfast at home and 2 percent said "no one" ate supper at home.

The high proportion of persons away from home at lunch was largely due to children who were in the school lunch program as well as husbands whose work did not allow them to come home for lunch. The high proportion of family members away from home at lunch time put an extra responsibility on the homemaker to have well-balanced meals for her family for breakfast and supper. It should be pointed out that the difference between the food habits of the mothers and their children (as shown elsewhere in this report) was partly due to the high proportion of children eating lunch at school.

Families Monthly Food Costs. There was found to be a considerable distribution of differences in the monthly food costs for families involved in the program. The range was from 4 percent who spent $30 or less to the same proportion who spent over $170 per month. The remaining 92 percent of families were evenly

TABLE I

Percentage of family members eating various meals at home by proportion of family present for the meal.

Proportion of family members eating at home	Percentage of family eating various meals at home.		
	Breakfast	Lunch	Supper
All	57	18	71
Most	30	23	20
Half	2	6	1
Less than half	7	41	4
None	3	10	2
No response	1	2	2
TOTAL	100	100	100

* Lunch is considered the noon meal and supper is considered the evening meal.

distributed between these two extremes. The two primary reasons for this wide range were: (1) differences in family income and (2) differences in size of families. The following is a list of the percentage and number of families for various categories of monthly food costs--the number of families is protected to represent all 6,000 families involved in the study:

FOOD COSTS	PERCENT OF FAMILIES
Less than $30.	4
$31 to $50.	12
$51 to $70.	15
$71 to $90.	25
$91 to $110	15
$111 to $130	13
$131 to $150	7
$151 to $170	5
$171 or over	4

The wide range of money available for the family food supply and the various needs among different families raises some critical points concerning an educational program for these people. There is obviously a need for considerable emphasis on low-cost foods and certainly a need for emphasis on meal planning and money management.

Where Families Buy Groceries. By far most food in this country today is marketed to consumers through "supermarkets" and the small corner grocery and rural store are decreasing. This was found to be the case in this study where 74 percent of the homemakers interviewed reported usually buying their groceries at a supermarket and 26 percent usually buying at the small local store. Since, as many as one out of four families still depend on the small grocery store for most of their food, it seems that we have a major obligation to help these people make better food buys. It is not sufficient to recommend to them that they leave the small store and buy at the supermarket where the prices are cheaper and the variety of foods are greater. Most of those who can do this have already done so, and it is likely that we will always have the small grocery store which accommodates a certain proportion of our families food needs. The question is "What can an educational program in foods and nutrition do to help those persons who usually buy groceries at the small stores?" Also, "How can we help make such small stores be more effective and efficient in performing this function?"

Homemakers were also asked how far they lived from the store from which they usually bought groceries and how they usually got there.

One-fourth (25%) lived more than five miles from the grocery store they used most, 35 percent lived from one to five miles and 40 percent lived less than a mile. Slightly over half (54%) usually depended on their own car for transportation to the grocery, 22 percent (mostly those living less than a mile) walked, 9 percent used a bus or taxi, and 12 percent depended on some other facility such as going with a neighbor or relative.

Distance To Donated Food Center Or Food Stamp Office. Persons interviewed were also asked how far they lived from a donated food center and from the food stamp office (if these programs were available in the parish). Only 8 percent of the homemakers reported having a donated food center available in their parish and most of these (5%) said they lived over five miles from that food center. Two percent lived from one to five miles and 1 percent lived less than a mile from the donated food center. On the other hand, 34 percent reported having a food stamp office in the parish where they lived and 16 percent reported this office to be over five miles from their residence compared to 10 percent who were from one to five miles and 8 percent said that they lived within a mile of this office.

Of the 8 percent who reported using donated food, about half went to the office in their own car, one-fourth used a bus or taxi and the other forth depended on some other transportation. Of the 34 percent (some 2,000 of the 6,000 homemakers) who used donated food stamps, over one-third (40%) used their own car to go for the stamps, 25 percent walked, 18 percent used a bus or taxi, and 22 percent depended on some other means of transportation.

Sources Of Food.

Each homemaker was asked about various sources of food for their family during the period of the eight weeks program. It was found that almost half of the homemakers (49%) had used food which had been prepared and frozen at home. Almost as many (44%) said they had used food which had been canned or preserved at home. Another fairly common source of food during the program was the home garden with 42 percent of the homemakers reporting food from this source. Slightly more than one-fourth of the homemakers (26%) had their own chickens as an egg supply for the family and 20 percent grew their own meat as a source of family food. Only 8 percent of the homemakers reported having their own cow as a source of milk for the family. Also, 25 percent of the families reported using USDA Food Stamps to supplement their family food supply during the period of the program and 8 percent reported using USDA Donated Foods during

the period. Five percent of the families reported having some other kind of food assistance, besides government food stamps or USDA donated foods.

Some Sources Of Food Related To Family Income. Various sources of the family food supply were compared according to the annual family income in order to gain insight into the important relationship of income to food supply. A summary of this comparison showed that persons in the middle income brackets ($2,000 to $4,999) were somewhat more likely to have a home garden than those in the lowest income bracket, less than $2,000 or in the highest income bracket $5,000 and over. More specifically, about 46 percent of those in the middle income bracket had a home garden compared to 36 percent in the lower income bracket and 34 percent in the highest income bracket.

Somewhat the same pattern was found for families with their own chickens as a source of egg supply with 28 percent of those in the $2,000 to $4,999 bracket having their own chickens compared to 24 percent of those with less than $2,000 income and 22 percent of those with $5,000 income and over.

About 24 percent of those with incomes over $2,000 reported having their own meat supply as a source of food compared to about 14 percent of those with incomes of less than $2,000. About 39 percent of those with incomes below $2,000 a year reported home canned or preserved food as a source of family food compared to 39 percent of those with incomes of $5,000 or over and 48 percent of those with incomes from $2,000 a year to $4,999 a year. Again, those in the middle income range were a little more likely to have home canned or preserved food as a source of family food.

Forty percent of the persons with incomes less than $2,000 reported having home frozen food as a source of family food compared to about 54 percent of those with incomes over $2,000. Among the 8 percent of families who had their own cow as a source of milk, there appeared to be little association to the family income.

Families with lower incomes were much more likely to use the USDA Food Stamp Program and the Donated Food Program than those with higher incomes. Thirty-eight percent of the families with incomes below $2,000 had USDA Food Stamps as a source of food compared to 26 percent of those with incomes from $2,000 to $2,999; 17 percent of those with incomes from $3,000 to $3,999 and 4 percent of those with incomes over $4,000 per year. Concerning donated foods as a source of income 21 percent of those with incomes from $1,000 to $1,999 and 4 percent of those with incomes as high as $2,000 or more.

EVALUATION OF THE NUTRITION PROGRAM AMONG HOMEMAKERS

Two criteria were used for evaluating the effect of the nutrition program among homemakers. First, each homemaker was interviewed before the program started and was asked what foods or drink she had for the 24 hour period prior to the interview and also, what foods and drink she considered necessary for good health. The second part of the evaluation involved asking the same two questions after the eight week nutrition program had been completed. As previously explained this evaluation of homemakers involved a random sample of all homemakers in the study.

From the list of foods mentioned by the homemaker as having been eaten, the Home Demonstration Agent recorded the number of servings of each of the four major food groups for each homemaker for the 24 hour period involved. The four food groups included (1) milk and milk products, (2) meat including meat substitutes such as dry beans and peanut butter, (3) vegetable and/or fruit, (4) bread and/or cereal products.

Milk And Milk Products.

The greatest change among homemakers as a result of the program was found to be their increased use of milk and milk products. It should be pointed out that emphasis was placed on the value of milk in the diet during the eight week program and especially in the economy of "dry" milk. Whereas one-third of the homemakers had no milk during a 24 hour period prior to the program only 19 percent reported having no milk during a 24 hour period "after" the program. (See Table II). On the other hand, one-third of the homemakers reported having two or more servings of milk "before" the study compared to 53 percent who had as many servings of milk for a similar period of time after the program was completed. Table II shows the exact number of servings from "non" to "five or more" for homemakers "before" the program and "after" the program. For example, only 7 percent of the homemakers reported having three servings of milk during a 24 hour period "before" the program compared to 17 percent "after" the program.

TABLE II

Percentage of HOMEMAKERS by number of servings of the Four Basic Food Groups during 24 hour period "before" the eight week special nutrition program compared to a 24 hour period "after" the program.

P E R C E N T

by servings of various food groups "before" and "after" the program

Number Of Servings	MILK		MEAT		VEG./FRUIT		BREAD/CEREAL	
	Before	After	Before	After	Before	After	Before	After
0	33	19	3	1	22	9	4	1
1	34	28	17	10	32	21	12	8
2	23	29	34	30	25	27	19	19
3	7	17	28	34	13	20	27	25
4	2	6	9	17	5	12	24	26
5 or more	1	1	9	8	3	11	14	21
TOTAL	100	100	100	100	100	100	100	100
2 or more*	33	53	80	89	--	--	--	--
4 or more*	--	--	--	--	8	23	38	47

TABLE III

Percentage of CHILDREN by number of servings of the Four Basic Food Groups during 24 hour period "before" the eight week special nutrition program compared to a 24 hour period "after" the program.

P E R C E N T

by servings of various food groups "before" and "after" the program

Number Of Servings	MILK		MEAT		VEG./FRUIT		BREAD/CEREAL	
	Before	After	Before	After	Before	After	Before	After
0	17	10	3	2	20	10	2	1
1	28	22	14	12	25	21	5	3
2	28	24	39	35	21	24	17	14
3	19	26	30	30	21	22	25	22
4	5	12	12	11	8	15	27	30
5 or more	3	6	2	11	5	8	24	30
TOTAL	100	100	100	100	100	100	100	100
2 or more*	55	68	83	87	--	--	--	--
4 or more*	--	--	--	--	13	25	52	62

* 2 or more daily servings of both milk group and the meat group and 4 or more daily servings of each of the other two groups is generally considered an adequate diet.

By any standard this would have to be considered a significant increase of milk in the diet of homemakers when one realizes that the emphasis on milk was only part of the eight week program.

Homemakers' Use Of Milk Related To Income. When a comparison of change in the milk diets of homemakers was further related to the annual family income it was found that homemakers from families with the lowest income were less likely to increase their use of milk in the diet. For example, 27 percent of the homemakers from families with less than $1,000 annual income reported having two or more servings of milk during a 24 hour period "before" the program compared to only 29 percent "after" the eight week education program. (See Table IV). On the other hand, each higher income category showed significant increases in the number of servings of milk by the homemaker "after" the program compared to "before" the program. For example, only 23 percent of the homemakers in the family income group from $1,000 to $1,999 reported as many as two servings or more of milk "before" the program compared to 46 percent "after" the program. Also, a 30 percent change was indicated for the homemakers with annual family incomes with $3,000 to $3,999 with 35 percent reporting two or more servings of milk "before" the program compared to 65 percent "after" the program. Those homemakers with family incomes of $5,000 or more reported 41 percent having two or more servings of milk prior to the program compared to 66 percent after the program. Thus, it could be generally said that the higher the income of the family the more milk consumed by the homemaker of that family both "before" and "after" the program. However, homemakers with higher incomes were more likely to increase their daily servings of milk as a result of the education program than those from the lowest incomes. It would seem that an educational program encouraging more milk in the diet is of little value to persons who cannot afford the cost of more milk.

Homemakers' Use Of Milk By Place Of Residence. When differences in the number of servings of milk were compared for "before" and "after" the program by place of residence of the homemaker it was found that homemakers of rural farm residence made the greatest change while those from urban residence made the least change. There were 22 percent of homemakers having two or more servings of milk "before" the program who were rural farm residence compared to 63 percent having as much milk "after" the program. On the other hand, 34 percent of the rural non-farm residence had two or more servings of milk "before" compared to 55 percent "after" the program and 35 percent of the urban residence had two or more

TABLE IV

Percentage of Homemakers having adequate* servings of each of Four Major Food Groups during 24 hour periods "before" and "after" the 8 week program by Income, Residence, and Education, 1969.

P E R C E N T

by

Food Groups "before" and "after" Nutrition Program

Family Income, Place of Residence and Education of Homemaker	2 or more Milk Servings		2 or more Meat Servings		4 or more Veg./Fruit		4 or more Bread/Cereal	
	Before	After	Before	After	Before	After	Before	After
ALL HOMEMAKERS	33	53	80	89	8	23	38	47
Income								
Less than $1,000	27	29	84	82	8	11	34	39
$1,000 - 1,999	23	46	82	87	8	18	32	48
$2,000 - 2,999	38	48	75	90	7	21	42	44
$3,000 - 3,999	35	65	80	89	5	29	34	64
$4,000 - 4,999	47	70	86	88	10	28	51	32
$5,000 & over	41	66	90	100	18	29	46	49
Residence								
Urban	35	47	81	86	8	26	38	46
Rural Non-farm	34	55	83	92	6	18	39	48
Rural Farm	22	63	72	86	10	28	38	57
Education								
None	19	52	90	85	10	5	28	47
4 yrs. or less	29	42	79	87	8	25	42	54
5 to 8 yrs.	30	47	74	57	5	19	38	45
9 to 12 yrs.	28	50	79	88	9	30	41	51
Finished high school	44	65	83	93	13	24	42	60

* For purposes of this evaluation, 2 or more servings of both Milk and Meat groups and 4 or more of both Veg./Fruit and Bread/Cereal groups are considered minimum for average adequate diet.

servings of milk "before" the program compared to 47 percent "after" the program. Thus, while rural farm homemakers appeared to be the least users of milk in their diets "before" the program; they were the largest users of milk "after" the program when compared to homemakers of rural non-farm and urban residence.

It might be surprising to learn that rural farm residence used less milk than their town and city neighbors. However, as this study shows the family milk cow is almost a thing of the past, even on the farm, and, whereas, most urban or rural non-farm residence either have milk delivered to their doorsteps or live fairly close to a grocery store, the rural farm family generally has to purchase their family milk supply when they make their trip to town for groceries. The substantial increase in the use of milk by rural farm homemakers appears to be a very significant accomplishment of the special nutrition program.

Homemakers' Use Of Milk By Education. A comparison of the number of servings of milk "before" and "after" the program among homemakers with different educational levels showed those with no education to have made the greatest change and those with the highest education to have made the next greatest change. (See Table IV). Only 19 percent of the homemakers with no education had as many as two or more servings of milk "before" the program there were 52 percent "after" the program for a difference of 33 percent. On the other hand, 28 percent of the homemakers with 9 to 12 years education had two or more servings of milk "before" the program compared with 50 percent "after" the program and 44 percent of those who finished high school had as much milk "before" the program compared to 65 percent "after". These data would indicate that homemakers with more education were generally likely to be drinking more milk both "before" and "after" the program than those with less education, however, the proportion of homemakers who increased their use of milk as a result of the program was greatest among the least educated. (See Table IV).

Homemakers' Use Of Meat By Income, Residence, And Education.

There was a somewhat modest difference between the proportion of homemakers having two or more servings of meat during the 24 hour period "before" the program (80%) compared to those "after" the program (89%). A more revealing breakdown concerns a comparison of those having three or more servings of meat during the same periods where it was found that 46 percent were in this category "before" the program compared to 59 percent "after" the program. On the other hand, 20 per-

cent of the homemakers had only one or no servings of milk "before" the program compared to 11 percent "after" the program.

When difference in number of servings of meat was related to family income it was found that generally those with higher incomes had more servings of meat both "before" and "after" the education program. (See Table IV). Generally, those with incomes below $2,000 per year made very little change in the number of meat servings as a result of the program, so that, the modest change was mostly among homemakers with larger family incomes. However, it should be emphasized that most homemakers in every income category had two or more servings of meat for the periods involved.

Concerning place of residence, the smallest difference in a comparison of number of those with two or more servings of meat "before" and "after" the program was among urban homemakers with 81 percent "before" and 86 percent "after". The greatest difference was among rural homemakers where 72 percent had two or more servings of meat "before" the program compared to 86 percent "after".

There appeared to be little pattern of association between the education of the homemaker and the difference between those having two or more servings of meat "before" the program compared to those "after". Also, it appeared that those with less education were about as likely to have two or more servings of meat both "before" and "after" the program as those with higher education.

It might be stated that the modest difference in the number of having two or more servings of meat as a result of the program were slightly greater among those with higher education than those with lower education. (See Table IV).

Vegetables And Fruit In The Homemakers' Diet.

Before the program started, 54 percent of the homemakers reported having only one or no servings of vegetables or fruit during a 24 hour period prior to the interview compared to 30 percent "after" the program. Those attaining a more adequate diet of at least four vegetables and/or fruits were found to be 8 percent "before" the program compared to 23 percent "after" the program. (See Table II). Although, the proportion of homemakers having adequate servings of this important food group was relatively low both "before" and "after" the program, it would appear that the program was fairly

successful with almost three times the proportion of homemakers having adequate amounts of this food group "after" the program.

When those homemakers reporting four or more servings of vegetable and/or fruit were further compared by family incomes, homemakers with higher incomes were considerably more likely to have had adequate servings of this food group both "before" and "after" the program compared to those with lower incomes. For example, 18 percent of those with family incomes with $5,000 or over reported four more servings of this food group "before" the program compared to 29 percent "after" the program, whereas, homemakers with incomes less than $1,000 a year reported 8 percent "before" and 11 percent "after". (See Table IV). The greatest difference in number of servings in this food group was found to be among the homemakers in the middle income ranges from $2,000 to $4,999 compared to both the lower and higher income ranges.

Although, each residential category showed a greater number of servings of this food group "after" the program was completed the urban and rural farm group showed greater change than did the rural non-farm group.

When the homemakers were divided according to their educational attainment it was found that those with no education were less likely to have made changes in the use of vegetable and fruit in their diet as a result of the program than those with some education. (See Table IV).

Bread And Cereal In The Homemakers' Diet.

The study showed 38 percent of the homemakers to have had only one or no servings of bread during a 24 hour period "before" the program compared to 47 percent "after" the program. (See Table II).

When homemakers were divided according to educational attainment it was found that the greatest changes were made by the group with no education and the group with most education. Twenty-eight percent of those with no education reported having four more servings of this food group "before" compared to 47 percent "after" and 42 percent who had finished high school reported four or more servings "before" compared to 60 percent "after". (See Table IV). The marked improvement among the least educated was largely because of their low level "before" the program.

"ADEQUATE" DIET AMONG HOMEMAKERS BY INCOME AND RESIDENCE

Another index of the value of eight weeks education program can be expressed in terms of the adequacy of diets among homemakers involved. It was pointed out earlier that only 4 percent of the homemakers in this study had an adequate diet for the 24 hour period tested "before" the eight week program compared to 13 percent "after" the program. An adequate diet was defined as having at least two servings of the milk group, two servings of the meat group, four servings of the vegetable/fruit group, and four servings of the bread/cereal group.

Income. When homemakers were divided according to their family income, it was found that homemakers with incomes of $5,000 or over were more likely to have better balanced diets "before" the program than those with lower incomes. (See Table V). There were 7 percent of the homemakers in the $5,000 or higher income group who had adequate diets "before" the program compared to 2 to 4 percent of those with incomes of less than incomes of $5,000. The single income category of homemakers for which the greatest gain was made concerning adequate diets as a result of the program was among homemakers with incomes from $3,000 to $3,999 where it was found that 3 percent had adequate diets "before" the program compared to 20 percent "after" the program.

Also, those in the categroy of $5,000 and over made considerable progress with 7 percent having adequate diets "before" the program compared to 17 percent "after" the program. The homemakers in the lowest income category (less than $1,000) made least progress as a result of the program. There were 3 percent in that category who had adequate diets "before" the program compared to 5 percent "after" the program. These data substantiate the proposition that lack of income is a definite deterrent to better diets among many homemakers in Louisiana.

Data was also analyzed concerning homemakers who had at least "one" serving of each of the four basic food groups during the 24 hour period tested. Although, this is by no

TABLE V

A comparison of HOMEMAKERS by number of servings of each of the four basic food groups "before" and "after" the eight weeks program by Income and Residence.

Homemakers by Income and Residence	At least "1" serving of each group		At least "2" or "4" servings of each group*	
	Before	After	Before	After
ALL HOMEMAKERS	54	75	4	13
Income				
Less than $1,000	34	66	3	5
$1,000 - 1,999	51	70	2	10
$2,000 - 2,999	57	75	4	12
$3,000 - 3,999	57	75	3	20
$4,000 - 4,999	67	80	4	8
$5,000 & over	61	88	7	17
Residence				
Urban	59	71	2	12
Rural Non-farm	49	76	5	13
Rural Farm	46	82	2	17

* "2" of both milk and meat groups and "4" of both vegetable/fruit and bread/cereal groups.

means considered an adequate diet; it does suggest some emphasis toward a more balanced diet. The lowest income group of homemakers (less than $1,000) were considerably less likely to have had at least "one" serving of each group "before" the program started than homemakers with higher incomes. Only one-third of the homemakers in the lowest income category had as many as "one" serving of each of the four food groups "before" the program compared to one-half to two-thirds of the homemakers in the higher income categories. (See Table V).

However, the proportion of homemakers in the less than $1,000 income category were so low to begin with that they almost doubled, from 34 percent to 66 percent, concerning those having at least "one" serving of each food group for the 24 hour periods tested as a result of the eight weeks program. These data would indicate that the lowest income category of homemakers at least made some progress toward achieving a more balanced diet as a result of the program. Generally, homemakers were more likely to have had at least "one" serving of each of the basic food groups <u>both</u> "before" and "after" the eight weeks program as their income increased.

The highest single category of homemakers, according to income, having at least "one" serving of each of the four food groups "after" the eight weeks program was completed, was 88 percent and these were homemakers with incomes of $5,000 a year or over.

<u>Residence</u>. Rural farm homemakers made the most progress in the proportion having an adequate diet as a result of the eight weeks program than either the rural non-farm or urban homemakers. There were 2 percent of the rural farm homemakers with an adequate diet "before" the program compared to 17 percent "after" the program while the rural non-farm homemakers changed from 5 percent to 13 percent and the urban homemakers changed from 2 percent to 12 percent. (See Table V).

Also, the rural farm homemakers made more progress in the proportion of those having at least "one" food from each of the four basic food groups during the 24 hour periods tested. They increased from 46 percent to 82 percent as a result of the eight weeks program compared to respective differences of 49 percent to 76 percent for rural non-farm and 59 percent to 71 percent for urban homemakers. (See Table V).

It is very obvious that much progress is needed before most homemakers and their families in Louisiana can be considered to have "adequate" diets. However, the eight week program has shown that improvements can be made and certainly we can

count on some much needed progress in this area. We also know that as important as education programs have been, this is not the only answer, since many of the very low income families can hope for improvement only as additional economic resources become available to them.

The greater improvement in adequate diets among rural farm homemakers reflects the fact that they greatly improved their milk consumption and, also, improved in breads and cereals, rather than, because they had more gardens.. (See Table IV).

HOMEMAKERS' KNOWLEDGE OF FOODS NECESSARY FOR GOOD HEALTH

Each homemaker was asked to mention the foods or drink which she considered necessary for good health and these were listed in one of the four major food groups. It was found that 80 percent of the homemakers mentioned milk or a milk product as being necessary for good health "before" the program and 97 percent mentioned milk "after" the program. Eighty-five percent of the homemakers mentioned meat "before" the program and 95 percent mentioned meat "after" the program. Fruit or vegetables were mentioned by 93 percent of the homemakers "before" the program and 99 percent "after". Bread or cereal was mentioned by 59 percent of the homemakers "before" and 79 percent "after" the program.

When calculations were made concerning the proportion of homemakers who mentioned at least "one" food from each of the four major food groups as necessary for good health it was found that 48 percent of the homemakers mentioned at least "one" of the four groups "before" the program compared to 77 percent "after" the program. The homemakers generally scored higher on listing foods that were necessary for good health <u>both</u> "before" and "after" the program than did the youth. Most of the homemakers knew which foods were necessary for good health "before" the program and most of those who did not know "before" showed that they had learned during the program. As with the youth the food group which was least likely to be mentioned as necessary for good health was the bread and cereal group <u>both</u> "before" and "after" the program.

It would appear that the problem of nutrition among persons interviewed was not so much one of not knowing which foods were necessary for good health, as it was a matter of actually putting into practice what they already know. Perhaps their knowledge goes little beyond "what" foods are necessary for good health, into such things as "why" certain foods are so important to the human diet and "when" they are more important for different age groups.

TABLE VI

Percentage of Homemakers and Youth who mentioned some food or drink from the four basic food groups as being necessary for good health "before" compared to "after" the eight week nutrition program.

Individual Food Groups And One From Each Of The Four	PER CENT Who Mentioned Various Foods			
	Homemakers		Youth	
	Before	After	Before	After
Milk	87	97	80	93
Meat	85	95	80	91
Veg./Fruit	93	99	80	93
Bread/Cereal	59	79	64	81
At Least "One" From Each Group	48	77	51	80

Changes Made By Homemakers As A Result Of The Program.

Inaddition, to the questions asked the homemaker concerning food she had eaten for a specified period "before" and "after" the program started, each homemaker was specifically asked if she had made any changes in a selected number of items concerning feeding her family. The homemaker was first asked if she had made any changes in the buying or preparation of food as a result of what she had learned in the program. If she indicated having made any changes she was specifically asked if changes had been made in a selected number of areas. Ninety percent of the homemakers indicated that they had made one or more changes as a result of the program, and 10 percent said they had made no changes. The items mentioned below refer only to the 90 percent who made some change.

Milk And Milk Products. Each homemaker who had made some change was asked how many changes she had made in the use of milk or milk products as a result of this program. While 25 percent indicated that they made no changes concerning milk, 52 percent said they made one change and 13 percent reported making two or more changes in their use of this food group.

Meat And Meat Substitutes. Homemakers indicating having made some change as a result of the program were asked how many changes they had made in the use of meat and meat substitutes. There were 30 percent who made at least one change concerning this food group and 39 percent reported having made two or more changes while 21 percent made no changes.

Changes In Vegetables And Fruit. Almost one out of five homemakers (19%) reported making one change in the use of vegetables and fruit for feeding their families and 33 percent reported making two or more changes in the use of this food group. On the other hand, there were 38 percent who had made no changes concerning this food group.

Changes In Bread And Cereal. When asked how many changes had been made concerning the bread and cereal food group as a result of the program, 35 percent reported making one change and 11 percent reported making two or more changes. There were 44 percent who reported making no change concerning this food group.

Changes In The Breakfast Meal. Homemakers were also asked if they had made any changes in what they served or how they prepared the breakfast meal for the family. Exactly half of

the homemakers interviewed indicated that they had made at least one change in their breakfast habits. Most of these (43%) were changes in the kinds of food that were served for breakfast. However, 7 percent reported that they had started preparing breakfast for the family whereas they had not bothered with breakfast before the program. Forty percent reported making no changes in breakfast as a result of the program.

Changes In The Use Of Sweets. An effort was made during the program to emphasis more use of such foods as fruit and less use of certain types of sweets, especially for the childrens' diets. Each homemaker was asked how many changes she had made in the use of sweets as a result of the program. Forty-five percent indicated that they were using less sweets in feeding the family while 45 percent reported no change concerning this item.

Changes In A Balanced Diet. Homemakers were also asked if they had made any changes in trying to include some of each of the four food groups every day in feeding their families. More than two out of three homemakers (68%) said that they had made some changes in an effort to include each of the four food groups in the daily diet, while 22 percent indicated no such change. Also, 45 percent reported having made one or more changes in feeding their families inaddition to those already mentioned. The total number of changes made by various homemakers in any phase of foods or nutrition are listed below:

Number Of Changes of any kind made as a result of the program	Percent of Homemakers making that number of changes
No changes	10
One change	2
Two changes	5
Three changes	6
Four changes	8
Five changes	10
Six changes	10
Seven changes	10
Eight changes	14
Nine or more changes	25
TOTAL	100

TABLE VII

Percentage of HOMEMAKERS by number of changes made in four basic food groups and other selected items as a result of the eight weeks nutrition education program in Louisiana.

Selected Items in which Change Occurred	PER CENT by Number of Changes: No Changes in any Food Habits	No Changes in the Specific Item	"1" Change	"2" Changes	"3" or more Changes	TOTAL
Food Groups						
Milk or Milk products	10	25	52	12	1	100
Meat or Meat substitutes	10	21	30	24	15	100
Vegetables and/or fruit	10	38	19	21	12	100
Bread and/or cereal	10	44	35	11	0	100
Other Food Items						
Breakfast	10	40	43	7	0	100
Use of Sweets	10	45	45	0	0	100
More Balanced Diet	10	22	68	0	0	100
All Other Food Changes	10	45	25	12	8	100

* Changes of any kind...amount food used, how used, when used, etc.

HOMEMAKERS NOT IN THE PROGRAM, BUT THEIR CHILDREN WERE

Although, the initial plan for the youth program was to involve no more than two children for each homemaker enrolled in the program, most parishes reported additional children coming to the meetings and generally they were allowed to participate in the program. In East Baton Rouge Parish alone, which had one of the larger programs, there were more than 200 youth accepted in the program whose mothers were not enrolled.

Because of this large number of youth in this particular category, it was decided to interview a sample of their mothers in order to determine whether or not they had been influenced by their children having been in the program. Seventy-two such homemakers were selected at random and were interviewed by the nutrition Aides of that parish at the end of the regular eight weeks program. There were 30 Aides in the East Baton Rouge program, who attended a special training session for the purpose of collecting data for this study.

Homemakers were first asked if they had heard anything about the program and 96 percent reported that they had. When asked what they had heard about it, 22 percent mentioned something complimentary, such as, they had heard the program was good, and 68 percent mentioned something concerning subject matter, such as, they heard it was about food. The homemakers were also asked if they would be interested in participating in such a program and four out of five (80%) said that they would be interested. There were 4 percent who said that they would not be interested and 16 percent were undecided.

Each homemaker was asked how her child or children started going to the nutrition youth meetings. Eighty-five percent said that their children went with a friend, while 8 percent said that the Aide had told them about the program and 4 percent said that one of the homemakers in the program had told her child.

The homemaker was also asked how she first learned of the program and most of them (70%) said that they learned from their child or children, while 11 percent learned from a neighbor and the same proportion learned from one of the nutrition Aides.

Several mentioned another source of information in response to both questions, or failed to respond to the questions.

Influence Of The Program On The Child. Each homemaker interviewed in the East Baton Rouge Parish study was asked whether they felt their child had improved their food habits "very much", "some", a "little", or "none" as a result of the program. Slightly over half, 54 percent, said their child or children had improved "very much" compared to 28 percent who said they had improved "some" and 14 percent said a "little". Only 4 percent said that their child had not improved as a result of the program.

The homemaker was also asked how the child improved in his/or hers food habits. The percentage of changes in various phases of food habits are listed below in the order of the percent of children making each change:

NATURE OF CHANGE	PERCENT OF CHILDREN MAKING EACH CHANGE
Eating more veg./fruit	36
Drinking more milk	29
Eating a better balanced diet.	22
Having better mealtime habits.	11
Eating less sweets	11
Having better snack habits	7
Eating more meat	7
Other changes.	23

Some Family Characteristics. Of the families interviewed in the East Baton Rouge study it was found that 60 percent owned their homes compared to 36 percent who rented and 4 percent who had some other living arrangement. Information was also obtained concerning the number of persons in each household and it was found that two out of three families reported six or more persons, and over half of these had eight or more persons. Such large households would generally indicate that feeding the family was a very important item in the family budget. Following is a list of the percent of families with various numbers of persons per household:

PERCENT OF PERSONS IN FAMILY (HOUSEHOLD)

Number	Percent
No response	4
3 or less	4
4 or 5.	26
6 or 7.	30
8 or 9.	16
10 or more.	20

Information was obtained concerning the annual family income for each family and it was found that their incomes were well distributed among the lower income categories. The following is a list of annual family incomes and the percentage of families in each income category:

ANNUAL FAMILY INCOME	PERCENT OF FAMILIES
Less than $1,000	8
$1,000 - 1,999	18
$2,000 - 2,999	20
$3,000 - 3,999	28
$4,000 - 4,999	12
$5,000 and over	12
No response	2

Value Of The Program To The Homemaker. Each homemaker was asked how helpful it was to her to have a child in the program as far as learning more about foods. Most of the homemakers (64%) said it was "very helpful" and 22 percent said it was "fairly helpful". Only 7 percent said it was "little help" and 4 percent said it was no help to them.

Homemakers were also asked what changes they had made in feeding their families as a result of their child having been in the program. The greatest change was in the use of vegetables and fruit with 24 percent reporting that they feed their family more of this food group as a result of the program. The total number of changes were reported as follows:

NATURE OF CHANGE	PERCENTAGE OF HOMEMAKERS MAKING CHANGE
More vegetables and fruit served	24
More milk served	21
Better balanced diets	12
Changes in meat and meat substitutes	10
Changes in ways to prepare food	10
More economical food buying	7
Changes in bread and cereal	3
Other changes	4

Each homemaker interviewed was asked what she had to eat or drink in the 24 hour period prior to the interview, just as homemakers who were enrolled in the statewide study were asked.

There was no such information available from these homemakers before the program started to serve as a benchmark so

that this question only involved responses from these homemakers at the end of the program. However, we will compare these to responses of homemakers involved in the statewide study both "before" the program started, and "after" the eight weeks were completed.

It was found that 36 percent had two or more servings of milk for the 24 hour period involved compared to 33 percent of the homemakers in the total state study "before" the program, and 53 percent "after" the program. There were 88 percent who had two or more servings of meat for the 24 hour period compared to 80 percent "before" and 89 percent "after" for the statewide study. Fourteen percent reported having four or more servings of vegetables and fruit compared to 8 percent "before" and 23 percent "after" for the total state study, and 40 percent reported having four or more servings of bread and cereal compared to 38 and 47 percentages respectively in the statewide study. Thus, it would appear that the homemakers in this study reported somewhat better diets than the homemakers in the statewide study "before" the educational program and somewhat less adequate diets than the statewide study "after" the eight week program. These data would support the theory that the homemakers who were not enrolled in the program, but whose children were in the program, made some progress but not as much as if they had been enrolled in the program themselves.

Concerning the homemakers diet for the 24 hour period in the study it was found that 70 percent of the Baton Rouge homemakers had at least one food from each of the four food groups compared to 54 percent of the homemakers in the statewide study "before" the program started and 75 percent from the statewide program "after" the program was completed.

Six percent of the homemakers in this study reported having at least two servings of both the milk group and the meat group and four servings of both the vegetables and fruit group and the bread and cereal group in their diet for the period involved compared to 4 percent of the homemakers in the statewide study "before" the program started and 13 percent of the homemakers in the statewide program "after" it was completed.

The homemakers in the East Baton Rouge Parish study were also asked what they considered to be the food and drink that were necessary to good health. They were asked this question after the child had completed the nutrition program. It was found that 92 percent mentioned milk or the milk group as being necessary to good health compared to 87 percent of the homemakers for the statewide study "before" the program

started and 97 percent of the homemakers in the statewide study "after" the program was completed. Ninety percent of the homemakers in the East Baton Rouge study mentioned meat as being necessary compared to 85 percent of the statewide group "before" the program and 95 percent "after" the program. Ninety-six percent of those in this East Baton Rouge study mentioned the fruit and vegetable group as being necessary to good health compared to 93 percent of the homemakers in the statewide study "before" the program and 99 percent "after" the program, and 78 percent mentioned bread and cereal as being necessary to good health compared to 59 percent in the statewide study "before" the program and 79 percent after the program was complete.

Again these data would indicate that the homemakers in the East Baton Rouge study were somewhere above the level of the homemakers in the statewide study "before" they started the eight week nutrition program and somewhat behind the level of the statewide group of homemakers "after" regular eight weeks program was completed. This would substantiate the theory that homemakers who were not enrolled in the program but who had children in the program got some knowledge from their children concerning foods and nutrition but not as much as homemakers who also enrolled in the program.

In mentioning the foods which were considered necessary for good health, 70 percent of the homemakers in the East Baton Rouge Parish study mentioned at least one food from each of the four major food groups compared to 48 percent of the homemakers in the statewide study "before" the program started and 77 percent "after" the program was completed.

The findings from the East Baton Rouge study would strengthen the arguement that homemakers can be reached with a nutrition program through their children and that children are an important influence on their mothers concerning the foods they eat. However, it would certainly indicate that a better job can be done by working with both the homemaker and her children in trying to bring about desireable changes in food habits for the entire family.

EVALUATION OF THE CHILDRENS' FOOD HABITS

As mentioned earlier, there were about 12,000 children between the ages of 7 and 13 who were involved in this special nutrition education program in Louisiana. These children attended regular meetings once a week for eight weeks, and each time they received from one and a half to two hours of training in nutrition. Seven of the meetings involved presenting information about foods and nutrition and the eighth was a meeting of both children and mothers. At this meeting the children were able to show their mothers what they had learned.

The evaluation of the youth phase of this program involved interviewing a random sample of youth before the program started and subsequently interviewing the same youth at the end of the eight weeks program. These interviews were made by the Aides who conducted the program--each child was interviewed by the Aide who taught him or her. There were 300 children included in the youth evaluation of the program and they were selected in such a way as to represent each of the 31 parishes involved in the program.

Some Characteristics Of The Children In The Program. Both boys and girls were involved in the nutrition program and they were equally distributed according to sex with the evaluation study containing 52 percent males and 48 percent females.

The children in the study were well distributed according to age as follows:

Age	Percent
7 or less	14
8 years	13
9 years	19
10 years	15
11 years	14
12 years	13
13 years	12
Total	100

Most of the children in the special nutrition education program (82%) were Negro with whites accounting for 18 percent of the children and other races, primarily Indian, accounting for the remaining 1 percent.

Fifty percent of the children in the program were urban concerning their place of residence while 32 percent were rural non-farm and 13 percent were rural farm. Place of residence was not indicated for 5 percent of the children in the program.

Forty-nine percent of the children in the program lived in homes that were owned while 40 percent lived in homes that were rented and 9 percent lived in homes that were otherwise made available to the family. Information on this was not available for 3 percent of the children.

The childrens relative position in the family was obtained and it was found that most of them (62%) were the youngest of families with three or more children. Fifteen percent of the children were between the oldest and the youngest in families of three or more and 3 percent were the oldest of three or more siblings. Only 6 percent were children in families with only one other child and half of these were the youngest and half were the oldest. Another 6 percent were the only child in the family.

For 16 percent of the youths' families there was no father listed as a member of the household. This probably contributed considerably to the low-income status of these families.

Milk And Milk Products Consumed By The Youth.

During the program, a major emphasis was placed on the importance of milk and milk products in the training in the diets of youth. The evaluation of the consumption of milk by the youth showed that 17 percent had no milk for the 24 hour period involved "before" the program started compared to 10 percent "after" the eight week program was completed. Also, 28 percent reported having only one serving of milk "before" the program compared to 22 percent "after", and the same proportion (28%) reported two servings of milk "before" the program compared to 24 percent "after". On the other hand, 19 percent of the youth reported having three servings of milk for the 24 hour period "before" the program compared to 26 percent "after". Five percent reported four servings "before" the program compared to 12 percent "after" and 3 percent reported five or more servings "before" the program compared to 6 percent "after". Thus, we find that 55 percent

of the youth consumed two or more servings of milk for the 24 hour period involved "before" the program compared to 68 percent "after" the program, or a difference of 13 percent.

The importance of milk in the diet of young people has long been stressed by parents and teachers so that it is not surprising that many of the youth were consuming an adequate amount of milk "before" the program started. However, the fairly moderate increase in the use of milk by the youth as a result of the program must be considered significant when one realizes about 1,000 of the 16,000 youth in that program, who did not drink milk before, began drinking milk and an additional 2,000 youth increased their daily consumption of milk. (See Table VIII).

Youths' Changes In Milk Consumption By Selected Variables.

Sex. When the youth involved in the study were divided according to sex there was found to be a difference of 15 percent more boys having two or more servings of milk per day "after" the program compared to the proportion having as much milk "before" the program, while the girls showed a difference of 10 percent. About the same proportion of each sex had two or more servings of milk daily "before" the program, while 71 percent of the boys compared to 64 percent of the girls had as much milk daily "after" the program. It would appear that the program was somewhat more impressive among boys than girls concerning the importance of milk in their diets. Perhaps, the boys were more conscious of their physical development for athletics and also, the girls might have been a little more conscious of gaining weight. (See Table VIII).

Residence. When the youth were divided by residence it was found that the greatest gain among the youth was among the urban youth and the next greatest gain was with the rural farm youth, with rural non-farm youth making no gain. Data from this study indicated that rural non-farm youth drink more milk than either of the other groups "before" the program started, but did not increase the proportion as a result of the program and actually drank less milk than the other two groups "after" the program was completed. Among the urban youth, a difference of 22 percent was found among youth having two or more servings of milk per day as a result of the program compared to a difference of 13 percent for the rural farm youth and no difference for rural non-farm youth. (See Table VIII).

Race. Almost equal proprotions of both races had as many as two or more servings of milk for the 24 hours tested "before"

TABLE VIII

Percentage of Youth having a specified number of servings of various food groups for designated 24 hour periods "before" and "after" the 8 weeks Nutrition Education Program by Sex, Residence, Race and Age, Louisiana 1969.

Sex Of Child, Place Of Residence, Race And Age Of Children	PER CENT by Food Groups "before" and "after" Nutrition Program							
	Milk Group*		Meat Group*		Veg./Fruit Group**		Bread/Cereal Group**	
	Before	After	Before	After	Before	After	Before	After
ALL CHILDREN	55	68	83	87	13	25	52	62
Sex Of Child								
Male	56	71	85	92	13	26	51	63
Female	54	64	81	81	12	24	51	60
Residence								
Urban	53	75	81	87	13	26	50	63
Rural Non-farm	57	57	90	91	14	25	57	61
Rural farm	53	66	71	79	8	21	50	50
Race								
White	55	63	79	88	16	22	53	55
Negro	54	69	84	87	12	25	51	63
Age Of Children								
7 years	54	68	81	90	17	12	51	68
8 years	60	64	77	94	6	23	43	71
9 years	61	67	88	88	12	25	52	63
10 years	44	73	76	84	16	42	40	53
11 years	54	80	93	93	7	24	49	46
12 years	50	47	82	82	16	24	50	63
13 years	59	65	79	79	18	24	62	71

* Percentage have 2 or more servings of the group during a 24 hour period.
** Percentage have 4 or more servings of the group during a 24 hour period.

the program started, 55 percent for white and 54 percent for Negro. At the end of the program it was found that 69 percent of the Negroes compared to 63 percent of the whites had as many as two or more servings of milk for the period tested, so that, the difference among Negro youth as a result of the program, was 15 percent compared to a difference of 8 percent among the white youth. (See Table VIII).

Age. When differences of age were considered concerning changes in milk consumption among the youth it was found that the greatest change was made by 10 and 11 year olds who showed differences of 29 percent and 26 percent respectively. The next greatest difference was among 7 year olds who showed a difference of 14 percent as a result of the program. The 8 and 9 year olds as well as those over 11 years old made modest or no increases. (See Table VIII).

In summary, it should be pointed out that boys generally made more progress in milk consumption than girls. Urban youth made more progress than rural youth. Negroes made more progress than white youth, and 10 and 11 year olds made more progress than their younger and older friends.

Consumption Of Meat And Meat Products By The Youth.

Most of the youth in the program were eating adequate servings of meat and meat products "before" the program was started and there were relatively little increase in their meat consumption as a result of the program. Only 3 percent of the youth reported having no meat for the 24 hour period involved "before" the program started and 2 percent were in this category at the end of this program. The biggest change was in the proportion of youth reporting as many as five or more servings of meat or meat products for the various periods involved. Only 2 percent reported five or more servings "before" the program started compared to 11 percent "after" the program was completed.

Those youth consuming two or more servings of meat or meat products during a 24 hour period "before" the program started, comprised 83 percent of the youth in the program compared to 87 percent of the youth "after" the program was completed. Thus, many young people simply increased the amount of meat and meat products they were eating. Much of this increase was due to emphasis on such meat substitutes as dry beans and peanut butter.

Youths' Changes In Meat Consumption By Selected Variables. There was very little difference among the youth in the proportion of having two or more servings of meat per day as a

result of the program. However, it might be pointed out that the male youth appeared slightly more likely to increase their consumption of meat as a result of the program than females. Also, white youth were slightly more likely to increase their meat consumption as a result of the program than were Negro youth. Both urban and rural farm youth were more likely to increase their meat consumption than were rural non-farm youth and 7 and 8 year olds were more likely to increase their consumption of meat as a result of the program than were older youth. (See Table VIII).

Consumption Of Vegetables And Fruit By The Youth.

One out of five of the youth interviewed (20%) indicated that they had no vegetables or fruit for the 24 hour period involved "before" the program and only 10 percent were in this category "after" the program was completed. On the other hand, 13 percent of the youth reported four or more servings for the period involved "before" the program compared to 23 percent "after" the program. Thus, we find a moderate increase in the use of fruit and vegetables among the youth in the program as a result of the emphasis on this food group during the program.

Youths' Changes In Vegetables And Fruit Consumption By Selected Variables. When children were divided by selected variables concerning the changes made in consumption of vegetables and fruit as a result of the program, it was found that boys and girls were equally influenced. However, Negro youth made slightly more gains than white youth (13% and 6% respectively) in the proportion having two or more servings of vegetables and fruit in their daily diet as a result of the program.

Although, rural farm youth had slightly less vegetables and fruit in their diet both "before" and "after" the program compared to the rural non-farm and the urban youth, there was very little difference in the progress made by the three residence groups as a result of the program.

When divided by age it appeared that the 8 through the 11 year olds generally made more gains in servings of this food group in their daily diets than did the younger or the older youth. (See Table VIII).

Consumption Of Bread And Cereal By The Youth.

Only 2 percent of the youth interviewed reported having no bread or cereal for the 24 hours involved "before" the program and this was reduced to 1 percent "after" the program.

On the other hand, 51 percent of the youth reported four or more servings of the bread or cereal group for the 24 hour period "before" the program and 60 percent reported consumption of as much bread and cereal for the 24 hour period "after" the program. Most of the other youth reported having received two or three servings of this food group for the various periods involved. These data would indicate a moderate increase in the consumption of bread and cereal by the youth as a result of the special Nutrition Education Program in Louisiana.

Youths' Changes In Bread And Cereal Consumption By Selected Variables. When the children were further divided by sex it was found that there were practically no difference between the boys and girls concerning change in the consumption of bread and cereals as a result of the program.

When the youth were divided by residence it was found that urban youth were more likely to have increased in the proportion having four or more servings of bread per day than the rural youth. (See Table VIII).

When the youth were divided by race it was found that the Negro youth were more likely to have increased in the proportion having four or more servings of bread and cereal per day than were the white youth as a result of the program.

When ages of the children were considered it was found that the 7 and 8 year olds were considerably more likely to have increased in the proportion having four or more servings of bread and cereal than their older friends.

Summary. A summary of these data would indicate that boys were somewhat more likely to increase the number of servings of various food groups as a result of the educational program than were the girls. According to residence the urban youth were slightly more likely to increase the number of servings of various important foods than were rural youth. Also, with the exception of the meat group the Negro youth were more likely to increase the number of servings of various food groups in their daily diets than were white youth. When age was considered it seemed that the 10 and 11 year olds were more likely to increase their number of servings of milk and vegetables/fruit than their older and younger friends, while the 7 and 8 year olds seemed to make greater changes in their increased servings of the meat group and bread/cereal group than their older friends.

YOUTHS' KNOWLEDGE ABOUT NUTRITION

Each youth interviewed was asked before the program started what foods he considered necessary for good health. All the foods mentioned by each boy or girl were recorded and later tabulated according to the four basic food groups. The same question was also asked each of them at the end of the program. Eightly percent of the youth mentioned milk as being necessary for good health "before" the program started compared to 93 percent "after" the program. Meat was mentioned by 80 percent of the youth "before" the program and 91 percent "after" the program. Vegetables and fruit were mentioned by 80 percent of the youth "before" the program and 93 percent "after" the program. Bread and cereal were mentioned by 64 percent "before" the program and 81 percent "after" the program.

A tabulation was also made concerning the proportion of youth who mentioned at least one food from each of the four major food groups as being necessary for good health. It was found that 51 percent of the young people mentioned at least one of each of the four food groups "before" the program compared to 80 percent "after" the program. These data would indicate that most of the youth knew what foods were important to good health, however, many failed to recognize bread and cereal as being one of these foods. The most significant change in knowledge of nutrition among youth was the indication that nearly 13,000 of the 16,000 youth (80%) mentioned foods in <u>each</u> of the four basic food groups as being necessary for good health "after" the eight week program. This emphasis on a well balanced diet among youth could in the long run be the most important contribution of such a nutrition program as this.

When the youth were divided according to sex, residence, and race there was found to be very little difference in those reporting one or more food from each of the four food groups as a result of the program. Girls did about as well as boys, white youth did about as well as Negro, and rural youth did about as well as urban. However, when they were divided by age it was found that seven year olds were less likely to name at least one food group from each of the four food groups as being necessary for good health as were the youth who were eight years or older. (See Table III).

A Comparison Of Changes Among Homemakers To Those Among Youth.

Milk and Milk Products. Before the program started 33 percent of the homemakers reported having two or more servings of milk for the 24 hour period tested compared to 55 percent of the children. After the program was completed the respective percentages were 53 for homemakers and 68 for children. Thus, we find that although the children were drinking more milk than the homemakers "before" the program started and also "after" the program was completed, a greater change was effected by the homemakers who showed an increase of 20 percent compared to the youth who showed an increase of 13 percent in the respective proportions having two or more servings of milk as a result of the program.

Meat and Meat Substitutes. There was very little difference between the homemakers and the youth in the servings of meat consumed either "before" or "after" the program.

Eighty percent of the homemakers compared to 83 percent of the youth reported having two or more servings of meat for the 24 hour period "before" the program compared to 89 percent and 87 percent respectively "after" the program. However, it should be noted that the homemakers showed 9 percent increase in the proportion having as many as two servings of meat as a result of the program compared to a 4 percent increase for the children.

Vegetables and Fruit. Criteria for determing an adequate number of servings of this food group was established as four or more servings per day. It was found that 8 percent of the homemakers compared to 13 percent of the youth had as many as four or more servings for the 24 hour period tested "before" the program started compared to 23 percent for each group at the end of the program. Although, relatively few in both groups had sufficient number of servings of this important food group either "before" or "after" the program, the data shows that there was a 15 percent difference in the proportion of homemakers having sufficient servings of this food group as a result of the program compared to 10 percent for the children. Again the homemakers made a greater change as a result of the program.

Bread and Cereal. An adequate daily requirement of the number of servings for this food group was also established at four or more and it was found that 38 percent of the homemakers compared to 51 percent of the youth had as many servings for the 24 hour period tested "before" the program compared to 47 percent for the homemakers and 60 percent for the

youth "after" the program. Both groups made a 9 percent increase in the proportion having this amount of bread or cereal in their daily diets as a result of the program. However, the children ate more bread than the homemakers both "before" the program and "after" the program.

In summary, we find that the youth had more of the milk group and the bread and cereal group in their daily diet than the homemakers and about the same proportions of the meat group and the vegetable/fruit group. However, the homemakers were generally more likely to have made greater changes in their number of servings as a result of the program than were the children.

EVALUATION OF A TWELVE WEEK NUTRITION EDUCATION PROGRAM

The Nutrition Education Program in Louisiana was initially planned as an eight week program, but it was decided to continue the program for four additional weeks in three of the parishes in order to get some indication of the value of extending the program beyond eight weeks. Three parishes which had begun the program before most of the others, and thus, completed the eight week program first were selected to continue for four additional weeks. These parishes were Terrebonne in south Louisiana, Rapides in central Louisiana, and Ouachita in north Louisiana.

At the end of the regular eight week program a sample of 103 homemakers from the three parishes were selected at random and were interviewed in an effort to get an evaluation of what had been accomplished in eight weeks to serve as a benchmark for a follow-up interview after 12 weeks. The same homemakers were interviewed again at the end of the four additional weeks except for several who were ill or who had moved or were otherwise unavailable. The following is an evaluation of the results of the four additional weeks.

Milk and Milk Products. At the end of the eight week program, it was found that 23 percent of the homemakers reported having "no" milk for the 24 hour period tested compared to 25 percent at the end of 12 weeks. On the other hand, 53 percent of the homemakers reported having "two" or "more" servings of milk for the period tested at the end of eight weeks compared to 46 percent of the homemakers at the end of 12 weeks.

Meat and Meat Products. It was found that 88 percent of the homemakers interviewed had "two" or "more" servings of meat for the 24 hour period tested at the end of eight weeks compared to 93 percent of the homemakers at the end of 12 weeks.

Vegetable and Fruit Group. At the end of the eight weeks program it was found that 18 percent of the homemakers had "four" or "more" servings of the vegetable and fruit group for the 24 hour period tested compared to 29 percent at the end of 12 weeks.

Bread and Cereal Group. At the end of the eight week program, it was found that 59 percent of the homemakers had "four" or "more" servings of bread or cereal for the 24 hour period tested compared to 55 percent at the end of the 12 weeks program.

Food From Each Of The Four Food Groups. At the end of the eight weeks, it was found that 68 percent of the homemakers interviewed in the three parish study had at least "one" serving of food from each of the four food groups for the 24 hour period tested compared to 67 percent at the end of the 12 week program. Also, it was found that at the end of the eight week program, 7 percent of the homemakers had at least "two" servings from both the milk and meat groups and "four" servings from both the vegetable/fruit and bread/cereal groups for the 24 hour period tested compared to 14 percent at the end of 12 weeks. Thus, it appeared that few, if any, gains were made in the actual food habits of the homemakers as a result of the four additional weeks, except a little progress in the proportion having a more well-balanced diet.

Knowledge Of Nutrition. Practically the same proportion of homemakers interviewed mentioned milk or milk products, meat or meat substitutes, and vegetable/fruit group as being necessary foods for good health at the end of eight weeks as compared to the end of 12 weeks. However, a slightly higher proportion, 81 percent of the homemakers mentioned bread and cereal as being necessary for good health at the end of eight weeks. Also, 79 percent of the homemakers interviewed at the end of 12 weeks mentioned at least "one" food from each of the four food groups as being necessary for good health compared to 63 percent at the end of eight weeks.

Number Of Changes After Four Additional Weeks Of The Program. At the end of the regular eight week program, each homemaker was asked specifically if she had made any changes concerning several selected aspects of food and nutrition, and at the end of 12 weeks, the same question was asked. When asked about the number of changes made in the use of milk and milk products, it was found that 65 percent of the homemakers had made "one" or "more" changes as a result of the eight week program compared to 63 percent as a result of the 12 weeks. Concerning changes in meat or meat substitutes it was found that 69 percent had made "one" or "more" changes at the end of the eight week program compared to 78 percent at the end of the 12 week program. There were 52 percent of the homemakers interviewed who said they had made "one" or "more" changes in the use of vegetables and/or fruit at the end of the eight week program compared to 66 percent at the

end of the 12 week program. Concerning the changes made in the use of bread and cereal in feeding their families, it was found that 46 percent had made "one" or "more" changes at the end of the regular eight week program compared to 55 percent at the end of the 12 week program.

Although, practically "no" additional change was made in the use of milk or milk products as a result of the four weeks continuation, substantial increases in the number of changes made for each of the other three major food groups were noted. Of course, it is likely that many of the changes made later were a result of things learned during the first eight weeks but the occasion just had not arisen for executing the change. For example, many homemakers had already bought supplies of certain foods, which they continued to use until they were used up before making certain changes as a result of what they had learned in the program. Also, a number of homemakers indicated that they had intended to make changes when they received their monthly pay or when they were able to afford them but had not been able to at the time of the interview at the end of the eight week program. It should be recalled that this eight weeks evaluation interview was made precisely at the close of the eight week program in order to establish a valid benchmark for considering the additional four week program.

The total number of changes made as a result of the program was tabulated and it was found that 47 percent of the homemakers had made "seven" or "more" changes of some kind in their manner of buying food or feeding their families at the end of the regular eight week program compared to 55 percent at the end of the 12 week program. The findings of this evaluation would certainly indicate that there is some value in continuing such a program as this beyond a specific period, such as was done in the eight week program. It is likely that the intensity of the program need not be as great as was in the case of the initial eight weeks but that some follow-up will be necessary in order to continue to get progress in the area of nutrition among the homemakers in the program. It is especially important to keep homemakers from regressing into patterns of feeding their families that existed "before" the nutrition program began.

SUMMARY EVALUATION OF THE NUTRITION PROGRAM

Significant changes were made by both homemakers and the children involved in the special nutrition education program concerning the daily consumption of various foods. In general, the greatest change in amount consumed was made in the use of milk and milk products and the second greatest change was in the increased consumption of foods in the vegetable and fruit group by both homemakers and youth. There was also a moderate change by both homemakers and children in the use of bread and cereal in their daily diet. The least change was noted for the meat and meat substitute group. Homemakers generally showed a greater change in their diets as a result of the special nutrition program then did the youth. Perhaps the food group needing more emphasis for future programs is the vegetable and fruit group for which a relatively small proportion of both homemakers and youth reported having adequate amounts in their diets.

The data from the evaluation also indicated that greater change was likely to be made in homes where there was more family income available for buying food. A major deterent to change in many homes was simply the lack of income necessary to buy the needed food.

The technique of influencing homemakers through their children proved effective, and this influence worked both ways as the youth were also influenced by their parents. Parents who were not enrolled in the program but who had children in the program were influenced to make some improvements in their food habits, but not as much as those homemakers who were actually visited by the Extension Aide or Agent.

Although the initial impact of the eight week program on the homemakers and youth might have brought about faster change than any single eight week follow-up period, there was still plenty of room for progress at the end of the initial program. The added four weeks carried out in selected parishes, making a 12 week program, seemed to bring about increased interest among homemakers in better balanced diets and more economy in food buying rather than changes in consumption of any particular food group.

The homemakers were generally interested in continuing in the program and seemed to want more information on new recipes, economical foods, and demonstrations on "how" to prepare various foods.

Many homemakers expressed willingness to meet in small neighborhood groups from time to time which might prove very advantageous for making demonstrations more effective and for gaining the motivating force which one homemaker may have on another in bringing about change.

There was evidence from the youth meetings that the age range was too great for the same level educational experience and the need was obvious for dividing the younger and older youth and preparing different lessons and materials for them, or otherwise being more restrictive on age limits. Wherever older youth were used as leaders with the younger ones, the Aide seemed to get more accomplished.

The completion of the eight weeks proved to be something of a graduation for the youth in the program. Any continuing program should include various achievement levels in order to maintain a continuing interest among the youth.

The initial eight weeks experience in Louisiana was invaluable as a basis for planning future programs of this type. The well structured approach as described in the eight weeks program proved to be a profitable initial experience for Aides in the program and will serve as a basis for developing more extensive programs of this type.

The regular Extension personnel working with the initial nutrition program in Louisiana found it to be a very rewarding, if demanding effort, and also, gained valuable experience for future programs of this type.

It is anticipated that the nutritition education program will be extended in Louisiana on a continuing bases and that such future programs will be improved as a result of experiences gained in this initial program. It is likely that future nutrition education programs in Louisiana will continue to emphasize the importance of working with homemakers and their children, however, the Aides and Agents will tend to concentrate their efforts on the homemaker and will extend the program to reach economically disadvantaged homemakers of all categories as well as those whose children participate in the program.

Emphasis will also be placed on continued studies of various aspects of the program in order to gain some knowledge about the relative effectiveness of certain teaching methods and program efforts as a basis for improvement.

APPENDIX A

Date _____

Part A to be completed by Aide and
Part B to be completed by Agent

FAMILY RECORD FORM I
LOUISIANA FOOD AND NUTRITION
EDUCATION PROGRAM

Part A
To be filled by Aide

1. Family Name _____ I. D. No. _____

   Address _____

2. Own or Rent? Own ☐ Rent ☐ Other ☐

3. Where live? Urban ☐ Rural Non-Farm ☐ Rural Farm ☐

4. Race: White ☐ Negro ☐ Other ☐

5. What did you eat and drink in the last 24 hours?

Part A To be filled by Aide Kind of food and drink (Enter main foods in mixed dishes)	Part B To be filled by Trained Agent Milk	Meat	Veg./ Fruit	Bread Cereal
Morning				
Midmorning				
Noon				
Afternoon				
Evening				
Before Bed				
Total no. of servings:				
Part B Totals at least --	1 Yes	1 -	1 No	1
Part B Totals at least --	2 Yes	2	4 No	4

Part A

6. What food and drink do you think people should have to keep health?

	To be filled by Trained Agent			
	Milk	Meat	Veg./ Fruit	Bread/ Cereal
Total:				
Part B Totals at least --	1	1	1	1
	Yes		No	

7.

Family Members (First Name)	Relation to Homemaker	Age Yrs.	Highest grade completed in school	In school lunch program? Check	Check meals eaten at home yesterday by each family member		
					Breakfast	Lunch	Supper
(No. of Members _____) TOTALS							

8. Comments by Aide: _____

_____

_____

APPENDIX B

Food and Nutrition Education Program

FAMILY RECORD -- FORM II
DESCRIPTION

(1) Parish Number _____ (4) Family ID No. _____

(2) Home Agent _____ (a) Name _____
Name

(3) Date _____ (5) No. Of Lessons Completed _____

(6) What did you eat and drink in the last 24 hours?

Kind of Food and Drink (enter main foods in mixed dishes)	Milk	Meat	Veg./ Fruit	Bread/ Cereal
Morning				
Midmorning				
Noon				
Afternoon				
Evening				
Before Bed				

Total No. Of Servings:	A	B	C	D
Totals at least --	1	1	1	1
E	Yes ☐		No ☐	
Totals at least --	2	2	4	4
F	Yes ☐		No ☐	

(7) What food and drink do you think people should have to keep healthy?

	Milk	Meat	Veg./ fruit	Bread/ Cereal
Total:	G	H	I	J
Total at least--	1	1	1	1
K	Yes ☐		No ☐	

(8) Would you say this program has been very helpful, fairly helpful, a little help, or no help to you as a homemaker?

very helpful ☐
fairly helpful ☐
little help ☐
no help ☐

(9) Have you actually made any changes in how you buy food/or feed your family as a result of this program?

yes ☐
no ☐

/If no, skip to 11/

10. /If any changes were made in the food habits (Question 9)/

We would like to get a better idea about the kinds of changes you have made. Did you make any changes (either in amount used or how it was used) in: (read "a" below), if so, what changes were made--then read "b"--etc.

AREAS OF CHANGE	CHECK Yes	CHECK No	WHAT CHANGES WERE MADE
Did you make any changes in: a. Use of meat, poultry fish, or eggs.			
aa. Use of dry beans, peas, or nuts.			
b. Use of bread and cereal group.			
c. Use of vegetables			
d. Use of fruits			
e. Use of milk or milk products			
f. The breakfast meal.			
g. The use of sweets.			
h. Trying to include something from each of the "4" different food groups everyday.			

i. Have you made any other c h anges in your buying or using of food as a result of this program?

(11) What part of the program was <u>most</u> helpful to you?

_____

_____

_____

(12) What changes would you suggest for such a program?

_____

_____

(13) If we were able to continue some program such as this would you be interested in learning more about foods and nutrition? (If interested say "very" interested or "fairly" interested.)

- ☐ very interested
- ☐ fairly
- ☐ not interested

(14) Inside house there is:

(a) ☐	Electricity	(c) ☐	Ice box	(e) ☐	Freezer	(g) ☐	Oven
(b) ☐	Running water	(d) ☐	Refrigerator	(f) ☐	Cook stove	(h) ☐	Hot plate

(15) How much did you spend for food last month, including both cash and credit? _____.

(Do not include value of foods received under Donated Food or other food assistance programs. If in the Food Stamp Program, include only amount spent to purchase food stamps or coupons.)

(16) Do you usually buy most of food at:

- ☐ (a) supermarket
- ☐ (b) small local store

(17) Which of the following were sources of food for your family during the past couple of months? (Check all that apply).

- ☐ (a) home garden
- ☐ (b) own milk cow
- ☐ (c) own chickens (eggs)
- ☐ (d) own meat
- ☐ (e) home canned or preserved food
- ☐ (f) home frozen food
- ☐ (g) USDA donated food
- ☐ (h) USDA food stamps

Check ☐ if no USDA donated food or food stamp program in area.

(18)

Food Sources	A. How Far From Home			B. How Usually Get There			
	Less than 1 Mile (a)	1-5 Miles (b)	More than 5 Miles (c)	Walk (d)	Own Car (e)	Bus or Taxi (f)	Other (g)
Store (in 16)							
Donated Food Center							
Food Stamp Issuance Office							

(19) During the program, was the Family on welfare (other than donated foods and food stamps):

Yes ☐
No ☐

(20) Family receiving food assistance on regular basis (other than donated foods and food stamps):

Yes ☐
No ☐

(21) Income last year for all family members. Include income from all sources, such as:

Wages salaries
Social Security
Welfare payments
Insurance payments
Veterans benefits
Pensions
Support from others
Income after expenses from business and farming

CHECK ONE:

(a) Less than $1,000 ☐
(b) $1,000 - 1,999 ☐
(c) $2,000 - 2,999 ☐
(d) $3,000 - 3,999 ☐
(e) $4,000 - 4,999 ☐
(f) $5,000 and over ☐

(22) How well did you know the Aide who worked with you before the program started, would you say she was --

- A close friend ☐
- A person you knew fairly well ☐
- A person you knew slightly ☐
- A person you didn't know ☐

(23) To what extent would you say your children (child) who were (was) in the program, improved their diets or eating habits, would you say --

- very much ☐
- some ☐
- little ☐
- none ☐

(24) /If improved,/ in what way did they improve?

_____

_____

(25) /Ask if married and if so, ask/ what did you husband think about the program, would you say he was --

- very interested ☐
- fairly interested ☐
- indifferent ☐
- against program ☐

(26) Have you shared any of the things you learned from the program with any of your friends or neighbors?

- Yes ☐
- No ☐

(27) /If yes,/ can you give us an example of this?

_____

_____

This concludes the interview and we appreciate your cooperation very much and hope to see you again.

TO AGENT: List the following information about the Aide who taught this homemaker.

(28) Age _____ (29) Years of School completed _____ (30) Race _____

(30) How would you compare the work of this Aide with the other Aides in your parish?

- above average ☐
- average ☐
- below average ☐

LOUISIANA STATE UNIVERSITY

AND

AGRICULTURAL AND MECHANICAL COLLEGE

This Certificate *Presented to*

for Noteworthy Participation in THE NEIGHBORHOOD NUTRITION PROGRAM
Conducted by the Cooperative Extension Service and the U. S. Department of Agriculture.

Parish Agent

Director

June 1969

ERIC Clearinghouse
AUG 10 1970
on Adult Education

Prepared by
J. H. Jones, Jr.
Program Analyst and Professor of Sociology

Louisiana Cooperative Extension Service
Louisiana State University
John A. Cox, Director